

## AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions, and listings, of claims in this application.

### Listing of Claims

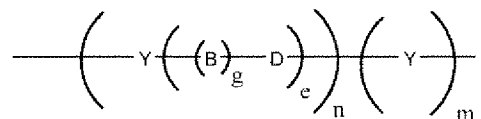
1-19. (canceled)

20. (previously presented) An apparatus for the detection of a protein target analyte in a test sample, comprising:

- a) a test chamber comprising an array of first measuring electrodes each comprising:
  - a passivation agent monolayer comprising at least a covalently attached first passivation species and a covalently attached second passivation species comprising a protein binding ligand;
    - wherein said protein binding ligand is covalently attached to said electrode via a spacer;
  - wherein said test chamber further comprises at least one second measuring electrode; and
- b) a voltage source electrically connected to said test chamber.

21. (canceled)

22. (previously presented) An apparatus according to claim 20 wherein said spacer is a conductive oligomer having the formula:



wherein

Y is an aromatic group;

n is an integer from 1 to 50;

g is either 1 or zero;

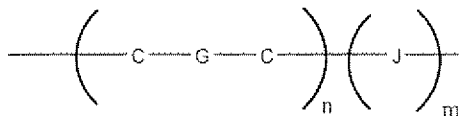
e is an integer from zero to 10; and

m is zero or 1;

wherein when g is 1, B-D is a conjugated bond; and

wherein when g is zero, e is 1 and D is preferably carbonyl, or a heteroatom moiety, wherein the heteroatom is selected from oxygen, sulfur, nitrogen, silicon or phosphorus.

23. (previously presented) An apparatus according to claim 20 wherein said spacer is a conductive oligomer having the formula:



wherein

n is an integer from 1 to 50;

m is 0 or 1;

C is carbon;

J is carbonyl or a heteroatom moiety, wherein the heteroatom is selected from the group consisting of oxygen, nitrogen, silicon, phosphorus, sulfur; and

G is a bond selected from alkane, alkene or acetylene, wherein if  $m = 0$ , at least one G is not alkane.

24-29. (canceled)

30. (previously presented) An apparatus for the detection of a non-nucleic acid target analyte in a test sample comprising:

a) a test chamber comprising an array of electrodes each comprising:

a passivation agent monolayer comprising at least a covalently attached first passivation species and a covalently attached second passivation species comprising a protein binding ligand;

wherein said protein binding ligand is covalently attached to said electrode via a spacer;  
wherein said test chamber further comprises at least one second measuring electrode; and

b) a voltage source electrically connected to said test chamber; and

c) an electronic detector.

31. (previously presented) An apparatus according to claim 20 or 30 wherein said passivation agent monolayer comprises insulators.

32. (previously presented) An apparatus according to claim 20 or 30 wherein said passivation agent monolayer comprises conductive oligomers.

33. (previously presented) An apparatus according to claim 20 or 30 wherein said passivation agent monolayer comprises insulators and conductive oligomers.

34. (previously presented) An apparatus according to claim 20 or 30 wherein said binding ligand is a protein.
35. (previously presented) An apparatus according to claim 20 or 30 further comprising a processor coupled to said electrodes and configured to receive an output signal.
36. (previously presented) An apparatus according to claim 20 or 30 wherein said protein binding ligand is a peptide.
37. (new) An apparatus according to claim 20 or 30 wherein said electrode comprises a member selected from the group consisting of gold, platinum, and graphite.
38. (new) An apparatus according to claim 20 or 30 wherein said passivation agent comprises polyalkyl chains.
39. (new) An apparatus according to claim 20 or 30 wherein said passivation agent comprises nonconductive oligomers.